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Patentanmeldung Nr. Patent application No. Demande de brevet n°

03104564.4

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R C van Dijk



Anmeldung Nr:
Application no.: 03104564.4
Demande no:

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Bezeichnung der Erfindung/Title of the invention/Titre de l'invention:
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If no title is shown please refer to the description.
Si aucun titre n'est indiqué se référer à la description.)

Assembly comprising a component provided with a sensitive part, which component
is connected to a base as well as an optical player comprising such an assembly

In Anspruch genommene Priorität(en) / Priority(ies) claimed /Priorité(s)
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Assembly comprising a component provided with a sensitive part, which component is connected to a base as well as an optical player comprising such an assembly

The invention relates to an assembly comprising a component provided with a sensitive part, which component is connected to a base with an elongated support surface supporting the component.

5 The invention furthermore relates to an optical player comprising such an assembly.

A version of such an assembly is known from the Japanese patent application 59-255371. This assembly comprises an optical component provided with a relatively sensitive element, particularly a light reflecting mirror. Said optical component is connected to a base. By means of the mirror, light is reflected over an angle of approximately 90° . To
10 prevent the component to be moved with respect to the base, a surface of the component which lies against a supporting surface of the base, is connected to said supporting surface by means of for example glue.

However, due to for example shrinkage of glue and variation of glue in volume, forces may occur on the optical component as well as on the mirror, due to which
15 the light reflecting surface of the mirror will not be located on the desired position with respect to the base. Also the sensitive part may be deformed due to the forces. Furthermore due to differences in coefficient of expansion of the materials of the base and the optical component and variations of temperature, other forces will be applied on the optical components due to which the optical path of the optical component will not be stable with
20 respect to the base.

It is an object of the invention to provide an assembly whereby the influence of the connection between the component and the base on the sensitive element will be minimized.

This object is achieved in that the component only on a side remote of said
25 sensitive element is connected to said support surface.

Since the component is only connected to the support surface on a side remote of said sensitive element, all forces due to for example the shrinkage of glue, forces applied by means of a screw or spring, temperature variations, etc. will only be applied on said part of the component, which forces will not influence the behaviour of the sensitive element.

Furthermore since the component is well supported by the support surface, it is relatively easy to position the component with respect to the base.

An embodiment of the assembly according to the invention is characterized in that said component is mounted on said base by means of a glue.

5 By means of a glue the component can be easily connected to the support surface.

A further embodiment of the assembly according to the invention is characterized in that between said sensitive part and the side connected to the support surface, the assembly is provided with a groove extending between said support surface and
10 the component.

By means of said groove glue is being prevented to flow under influence of for example a hygroscopic effect from the side remote of said sensitive part to a side near said sensitive part so that said side will not be accidentally connected to the support surface.

Another assembly according to the invention is characterized in that the
15 support is provided with the groove.

To provide the support surface with such a groove is relatively easy, whereby the optical component may have a smooth outer surface.

20 The invention will now be further explained with reference to the drawing in which:

fig. 1 is a front view of an embodiment of an assembly according to the invention,

fig. 2 is an enlarged cross section along the lines II-II of the assembly of fig. 1,
25 fig. 3 is an enlarged cross section along the lines III-III of the assembly of fig. 1,

fig. 4 is a schematically view of an optical player provided with an assembly according to the invention.

Similar reference numbers are being used for similar parts.

30

Fig. 1 shows an example of an assembly 1 according to the invention, which assembly 1 comprises a frame 2 with a base 3 for an optical component 4. The base 3 comprises an elongated support surface 5. Said support surface 5 has a cylindrical shaped

form similar to the cylindrical shape of the elongated optical component 4. On a first side said optical component 4 is provided with a chamfered edge 6 extending under an angle of 45° with respect to the longitudinal axis 7 of the optical component 4. The chamfered edge 6 functions as a mirror by means of which light falling on the chamfered edge 6 from the direction P1 is deflected in the direction P2. On a second side remote of said first side of the optical component 4 the base 3 comprises a cylindrical opening in which the second side of the optical component 4 is located. The opening 8 is bounded on one side by the support surface 5. Between the first and second side of the optical component 4, the base 3 is provided with a groove 9 which forms an interruption of the support surface 5. Near said groove 9 the optical component 4 is not being supported by said support surface 5.

The optical component 4 is attached to the base 3 by means of glue which is being applied in the opening 8 of the base 3. Due to said groove 9 glue is being prevented from flowing along the whole support surface 5 so that near the relative sensitive chamfered edge 6 the optical component 4 is not connected to the base 3. Since near the chamfered edge 6 the optical element 4 is not connected to the base 3, no undeviated forces or stresses will occur on the optical component 4 due to which the chamfered edge 6 might be deformed. Such stresses can only occur on the second side of said optical component 4 remote on relative large distance from the chamfered edge 6.

Fig. 4 shows an example of an optical player 11 according to the invention comprising a mounting plate 12 on which a motor 13 for driving an optical disc is mounted. The optical player 11 furthermore comprises a light emitting component like a laser 14 as well as optical components 15, 16, 17 which are located in the optical path of the laser 14. the optical player 11 is furthermore provided with a slide 18 being movable in the directions indicated by the double arrow 18 with respect to the mounting plate 12, which slide 18 is provided with the assembly 1 according to the invention. The optical component 4 of the assembly 1 is located in the same optical path as the optical components 15, 16, 17. When using the optical player an optical disc is being rotated by means of the motor 13 whilst a laser beam is emitted by the laser 14 and directed through the optical components 15, 16, 17 as well as optical component 4 to the optical disc. The light reflected by the optical disc will be directed in a manner known per se to a unit in which the reflected laser beam is being analysed.

It is also possible to connect the optical component 4 to the base 3 by means of a screw or by means of a spring force. In said case, the groove 9 is not needed and the optical component 4 may be supported along the whole support surface 5.

It is also possible to provide the support surface with a V-shaped profile by which the optical component is being supported.

It is also possible to provide the groove on the optical component instead of on the support surface.

5 Since the optical component is being supported along the whole length, the component is being well and easily aligned with respect to the base.

CLAIMS:

1. Assembly (1) comprising a component (4) provided with a sensitive part (6), which component (4) is connected to a base (3) with an elongated support surface (5) supporting the component (4), characterized in that the component (4) only on a side remote of said sensitive element is connected to said support surface (5).

5

2. Assembly (1) according to claim 1, characterized in that said component (4) is connected to said base (3) by means of a glue.

3. Assembly (1) according to claim 2, characterized in that between said sensitive part (6) and the side connected to the support surface (5), the assembly (1) is provided with a groove (9) extending between said support surface (5) and the component (4).

4. Assembly (1) according to claim 3, characterized in that the support is provided with the groove (9).

5. Assembly (1) according to one of the preceding claims, characterized in that the sensitive element is a mirror.

6. Assembly (1) according to claim 5, characterized in that the mirror extends under an angle with respect to said support surface (5).

7. Assembly (1) according to one of the preceding claims, characterized in that the component (4) is connected to the base (3) by means of a force applied by a screw or spring on said side remote of said sensitive element.

8. Optical player (11) comprising an assembly (1) according to one of the preceding claims.

ABSTRACT:

Assembly (1) and optical player comprising such an assembly. The assembly is provided with a component (4) provided with a sensitive part (6), which component (4) is connected to a base (3). The base (3) comprises an elongated support surface (5) supporting the component (4), whereby the component (4) only on a side remote of said sensitive
5 element is connected to said support surface (5). The sensitive element is a mirror, for example.

Fig. 3

1/3

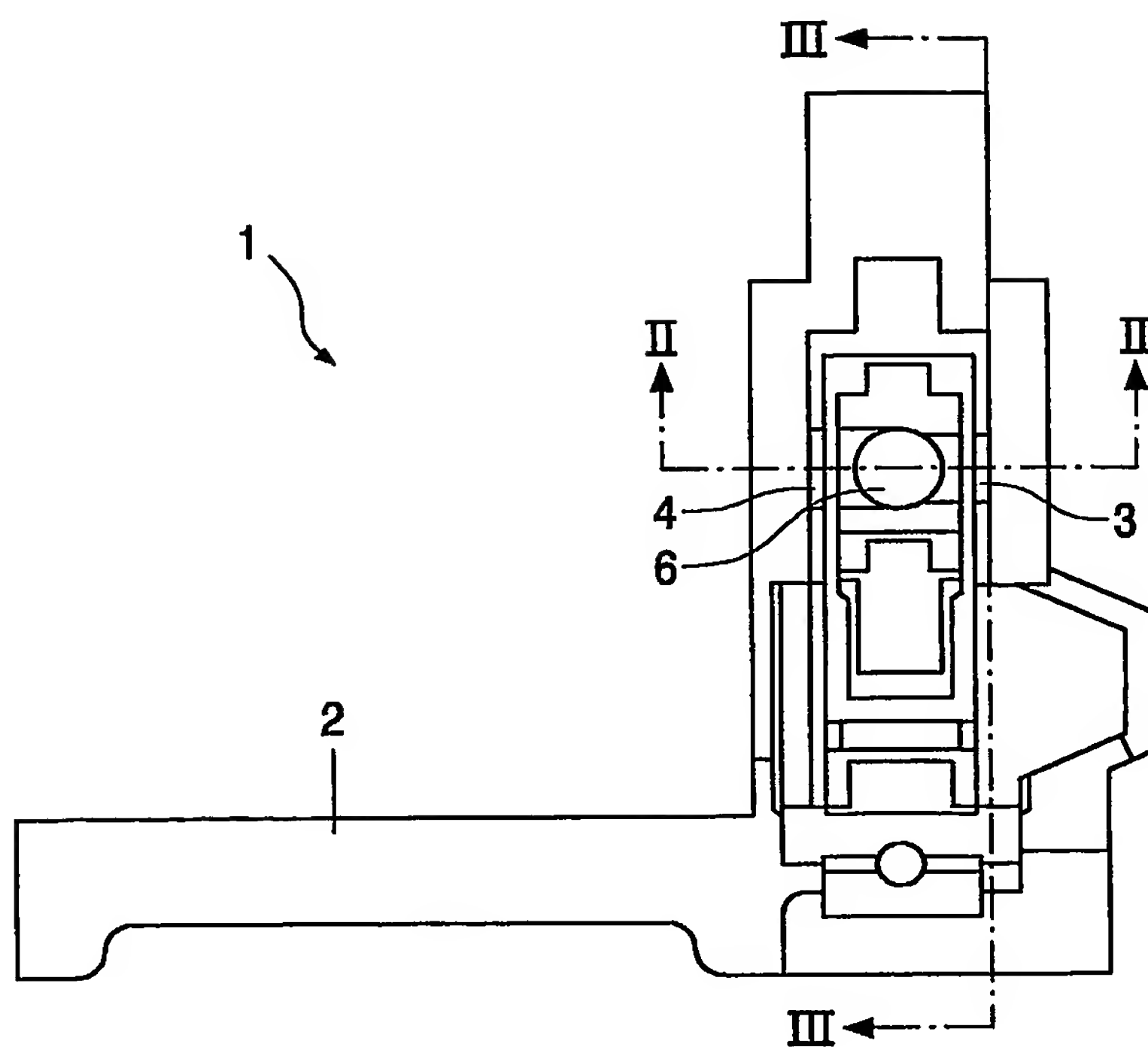


FIG. 1

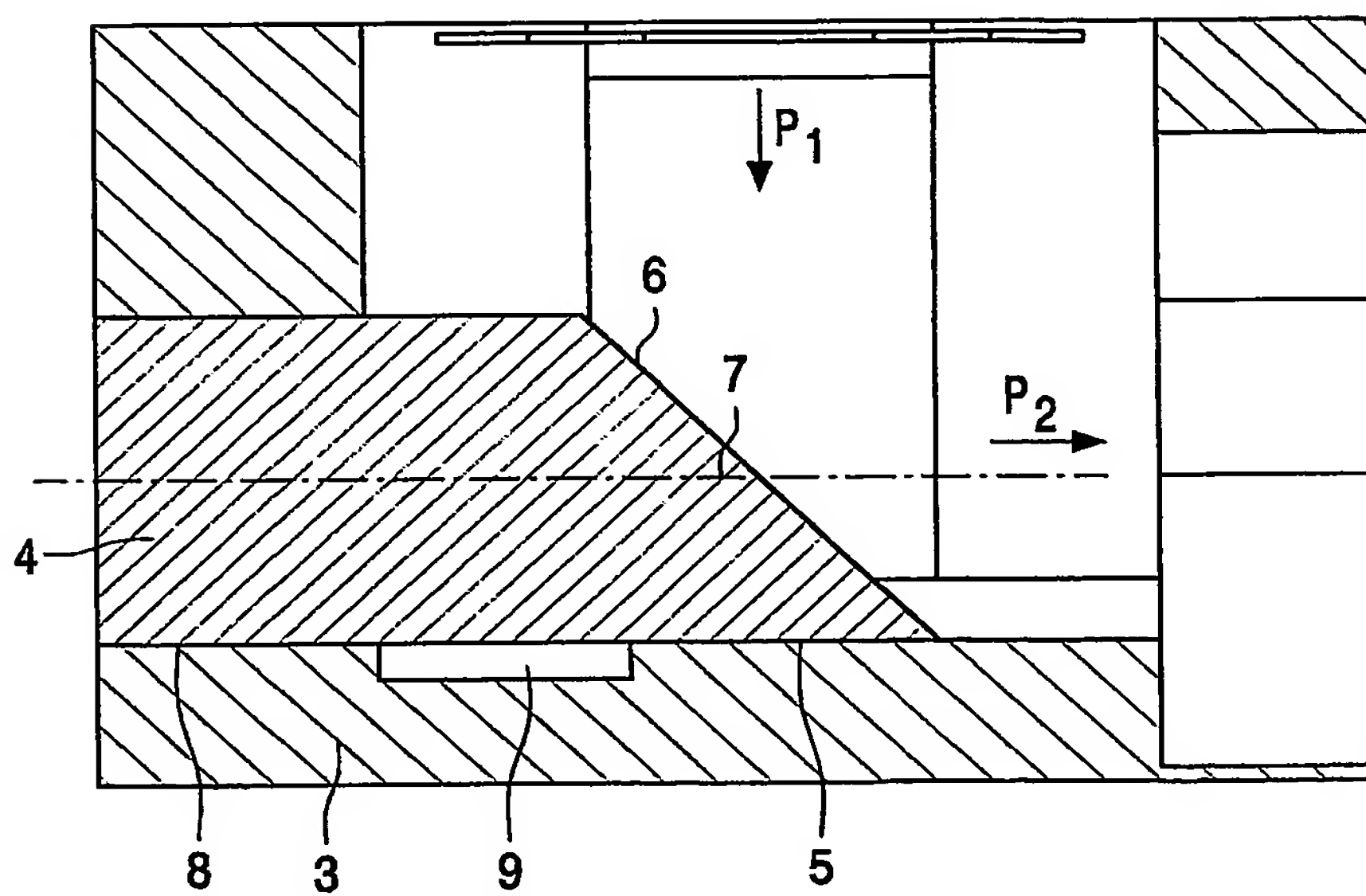


FIG. 2

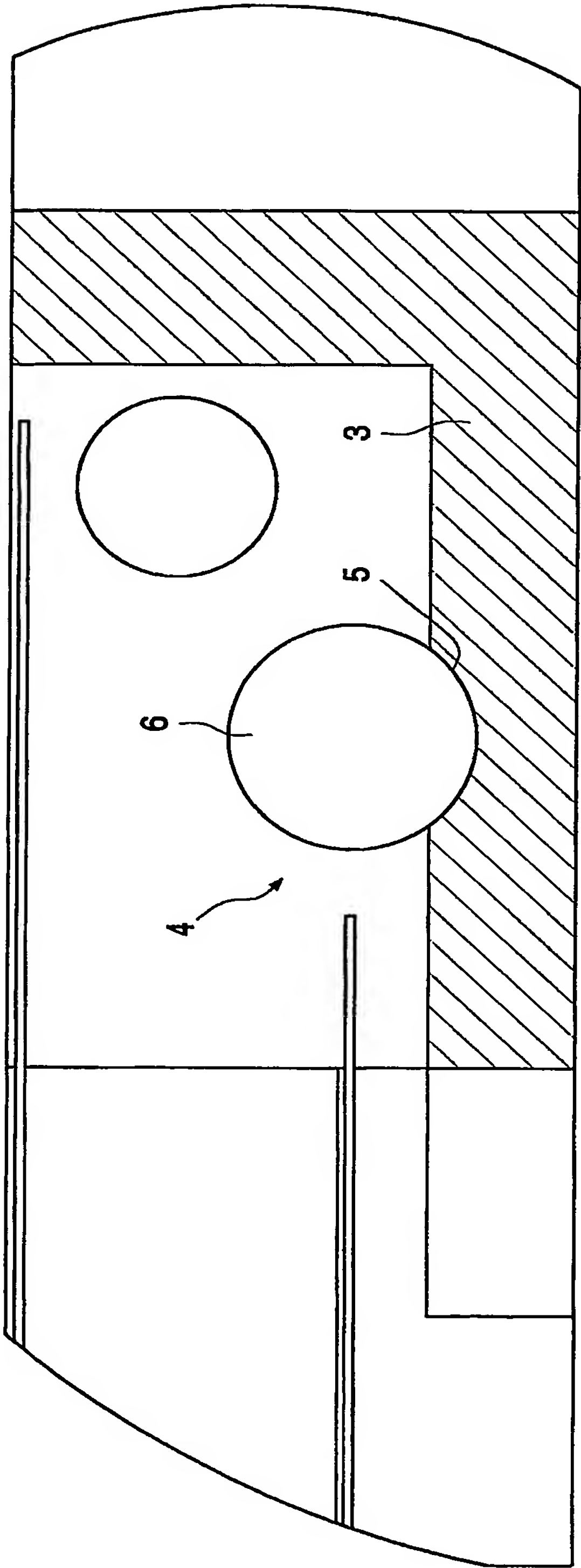


FIG. 3

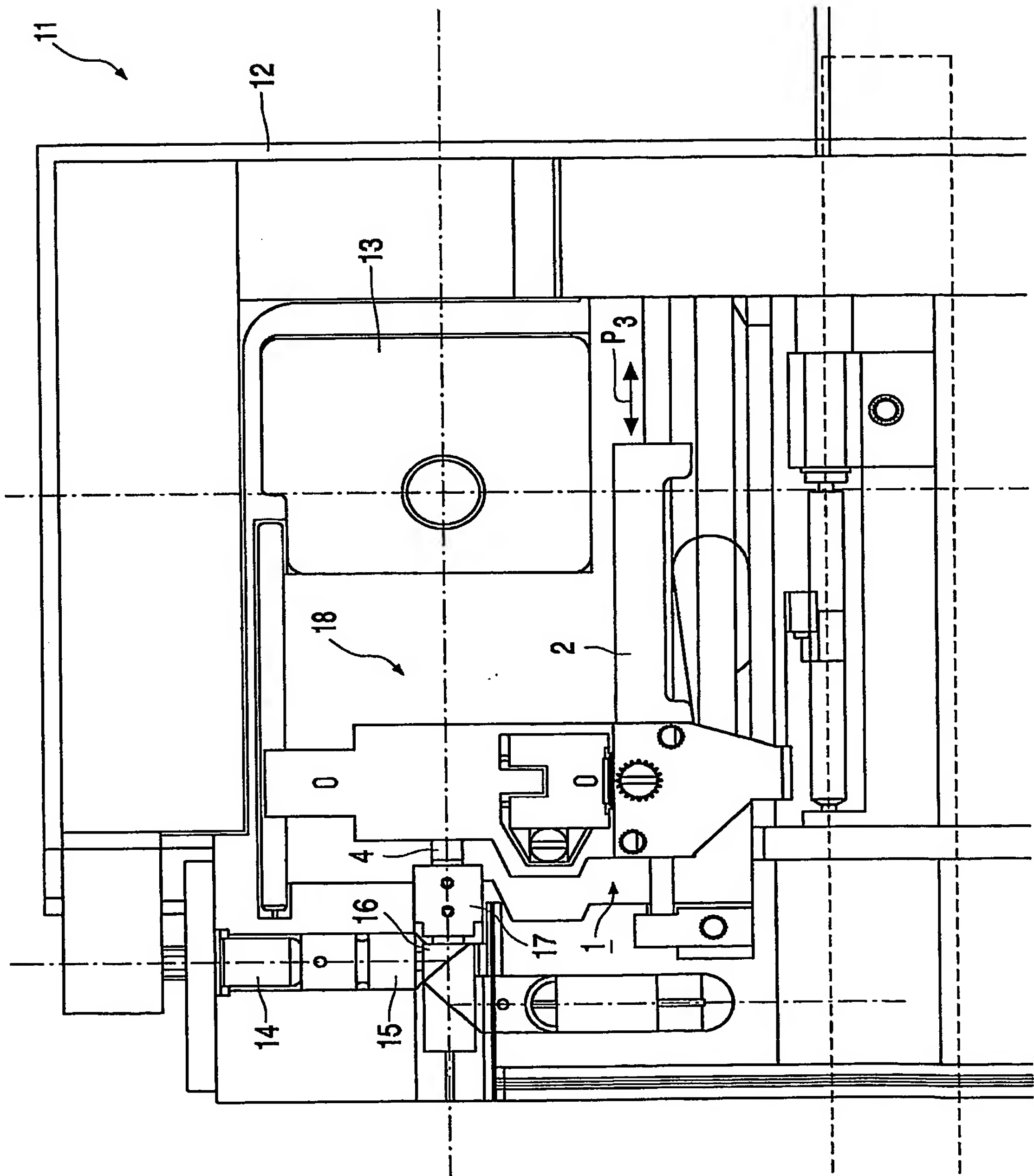


FIG. 4

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